

**NEW SPECIES OF THE PLANT BUG GENERA *KELTONIA* KNIGHT AND
PSEUDATOMOSCELIS REUTER (HETEROPTERA: MIRIDAE: PHYLINAE)**

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Abstract.—The new phylinae plant bugs, *Keltonia wheeleri* from Georgia and South Carolina in the southeastern United States, and *Pseudatomoscelis nubila* from Province Pedernales in the Dominican Republic, are described. A dorsal habitus illustration and selected scanning electron micrographs of *K. wheeleri*, male genitalia of both species, and modified identification keys, including photographs of the keyed species [*K. rubrofemorata* (Knight); *K. wheeleri*, n.sp.; *P. flora* (Van Duzee); *P. insularis* Henry; *P. nubila*, n.sp.; and *P. seriata* (Reuter)], are provided to help distinguish the new species.

Key Words: Heteroptera, Miridae, Phylinae, *Keltonia wheeleri*, *Pseudatomoscelis nubila*, new species, Nearctic, Neotropical

The mirid genus *Keltonia* Knight contains 12 species ranging from Massachusetts to Colorado in the United States, south to Colombia, and into the West Indies (Bahamas, Jamaica), and the genus *Pseudatomoscelis* Reuter contains three species, including the cotton fleahopper [*P. seriata* (Reuter)], ranging from southern Canada, south to Venezuela, and into the West Indies (Puerto Rico, St. Thomas) (Henry 1991). Henry (1991) revised these two phylinae genera, described six new species of *Keltonia* and one new species of *Pseudatomoscelis*, and hypothesized that they represented sister genera, based on the shared stout C-shaped vesica bearing a large sickle-shaped spicule, clumps or tufts of acuminate sericeous or scalelike setae on the dorsum, one or two patches of dark bristle-like setae along the inner margin of the cuneus, and the large dark area on the membrane near the apex of the cuneus. Synapomorphies defining the species of *Keltonia* are the dorsal spots limited to the hemely-

tra; the conspurcate hemelytral membrane; sericeous or scalelike setae in distinct clumps and, often, in rows along the midline of the head and pronotum; the pale tibiae, with dark spots at bases of spines; and the stoutly formed, weakly twisted, C-shaped vesica, with a slender spicule and cuplike apical process. Synapomorphies defining the species of *Pseudatomoscelis* are the three or more spots on antennal segment II; the brown to black hemelytral membrane, with a black mark just posterior to the apex of the cuneus; the sericeous or scalelike setae in patches or clumps, but not in rows along midline (as in species of *Keltonia*); the stoutly formed, C-shaped vesica (lacking an apical cuplike process); and the phallosome with a subapical spine (except in *P. nubila* n. sp.).

In this paper, I describe *K. wheeleri* to provide a name for a forthcoming paper on its seasonal history, host, and distribution (Wheeler, in preparation), and *P. nubila* to provide a name for my forthcoming list of

the Miridae of the Dominican Republic. An adult dorsal habitus illustration and scanning electron micrographs of selected structures of *K. wheeleri*; figures of the male genitalia for both species; and modified keys, including photographs of species keyed in Henry (1991) [*K. rubrofemorata* (Knight); *K. wheeleri*, n. sp.; *P. flora* (Van Duzee); *P. insularis* Henry; *P. nubila*, n. sp.; and *P. seriata* (Reuter)], are provided to help distinguish the new species.

Acronyms for type depositories as follows: AMNH (American Museum of Natural History, New York, NY); CNC (Canadian National Collection, Ottawa, Ontario); TAMU (Texas A & M University, College Station, TX); and USNM (National Museum of Natural History, Smithsonian Institution, Washington, DC).

***Keltonia wheeleri* Henry, new species**

(Figs. 1–8, 10–13)

Diagnosis.—*Keltonia wheeleri* (Figs. 1, 8) is distinguished from all other species of the genus in having a shiny yellow dorsum (including the head, antenna, and pro- and mesofemora), a large centrally positioned fuscous spot on the hemelytra, an apically orange or red-tinged metafemur, and a fuscous or black membrane sprinkled with white spots.

Description.—*Male* (n = 10): Length 2.45–2.85 mm, width 1.02 mm. *Head* (Figs. 2, 3): Width 0.56–0.59 mm, vertex 0.34–0.38 mm. *Rostrum*: Length 0.74–0.77 mm, extending to mesocoxae. *Antenna*: Segment I, length 0.18–0.19 mm; II, 0.58–0.66 mm; III, 0.43–0.50 mm; IV, 0.37–0.40 mm. *Pronotum*: Length 0.34–0.35 mm, basal width 0.78–0.88 mm.

Female (n = 10): Length 2.50–2.72 mm, width 1.08–1.10 mm. *Head*: Width 0.56–0.59 mm, vertex 0.35–0.37 mm. *Rostrum*: Length 0.77–0.83 mm, extending to mesocoxae. *Antenna*: Segment I, length 0.16–0.19 mm; II, 0.64–0.67 mm; III, 0.43–0.51 mm; IV, 0.42 mm. *Pronotum*: Length 0.32–0.34 mm, basal width 0.82–0.83 mm.

Overall coloration shiny yellow to green-

ish yellow. Head, antenna, and pronotum uniformly yellowish to greenish yellow. Hemelytron yellow to greenish yellow, apical half of clavus and inner area of corium from middle of clavus to base of cuneus forming a large, dark patch or cloud. Ventral surface uniformly greenish yellow. Legs mostly yellowish green; metafemur tinged with orange or red on apical 1/3 and anterior half finely brown spotted; pale tibial spines with vague pale brown spots at bases; tarsi yellowish; claws brown. Vestiture of two types: simple, erect and semi-erect, pale brown setae on head, pronotum, and on greenish-yellow areas of hemelytron, simple fuscous to black setae on dark central area; and silvery sericeous or slender scalelike setae scattered on head, pronotum, and dark areas of hemelytron, a few clusters of sericeous setae along inner margins of eyes (Fig. 3), but without a median row of scalelike setae on head, pronotum, and scutellum typical of most other species in the genus.

Male genitalia: Genital capsule (Figs. 6, 7); vesica (Fig. 10); left paramere (Fig. 11); right paramere (Fig. 12); phallosome (Fig. 13).

Etymology.—This species is named in honor of Dr. A. G. Wheeler, Jr., long-time friend, colleague, and discoverer of this attractive new species.

Host.—*Polygonella americana* (Fischer-Meyer) Small [Polygonaceae].

Distribution.—Known only from the southeastern United States (Georgia and South Carolina).

Type material.—Holotype ♂: South Carolina, Aiken Co., Henderson Heritage Pres[erve]., N. of Aiken, 30 May 1998, A. G. Wheeler, Jr., taken on *Polygonella americana* (USNM). Paratypes: GEORGIA: 2 ♀, Burke Co., Yuchi Wildlife Mgt. Area, 4 mi. NNE of Girard, 1 July 1998, AGW, on *P. americana* (USNM); 4 ♂, 2 ♀, Columbia Co., Rt. 383, E of Lewiston, 5 July 1998, AGW, on *P. americana* (USNM); 1 ♂, 5 ♀, Glascock Co., Rt. 80, NE of Gibson, 5 July 1998, AGW, on *P. americana*

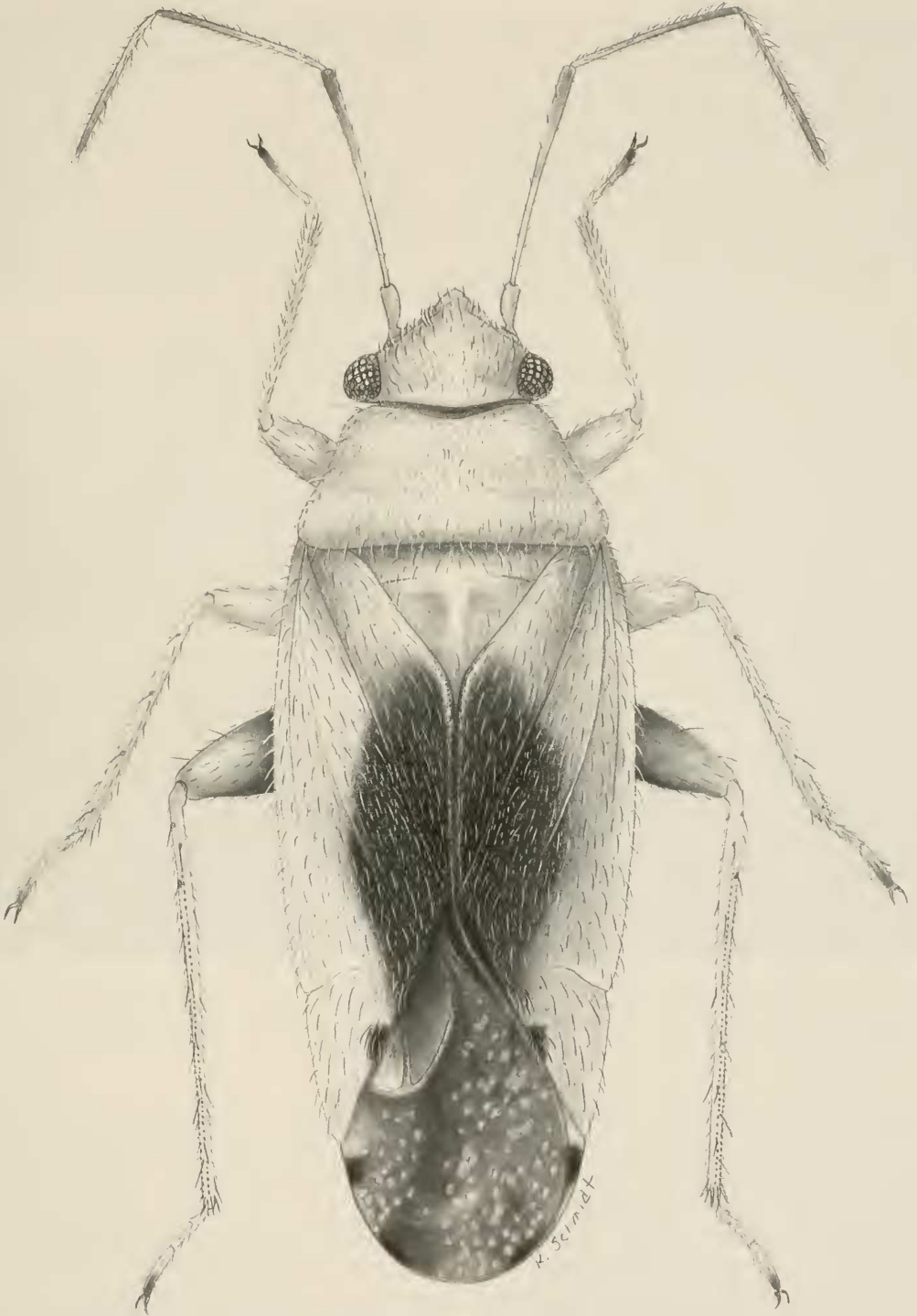
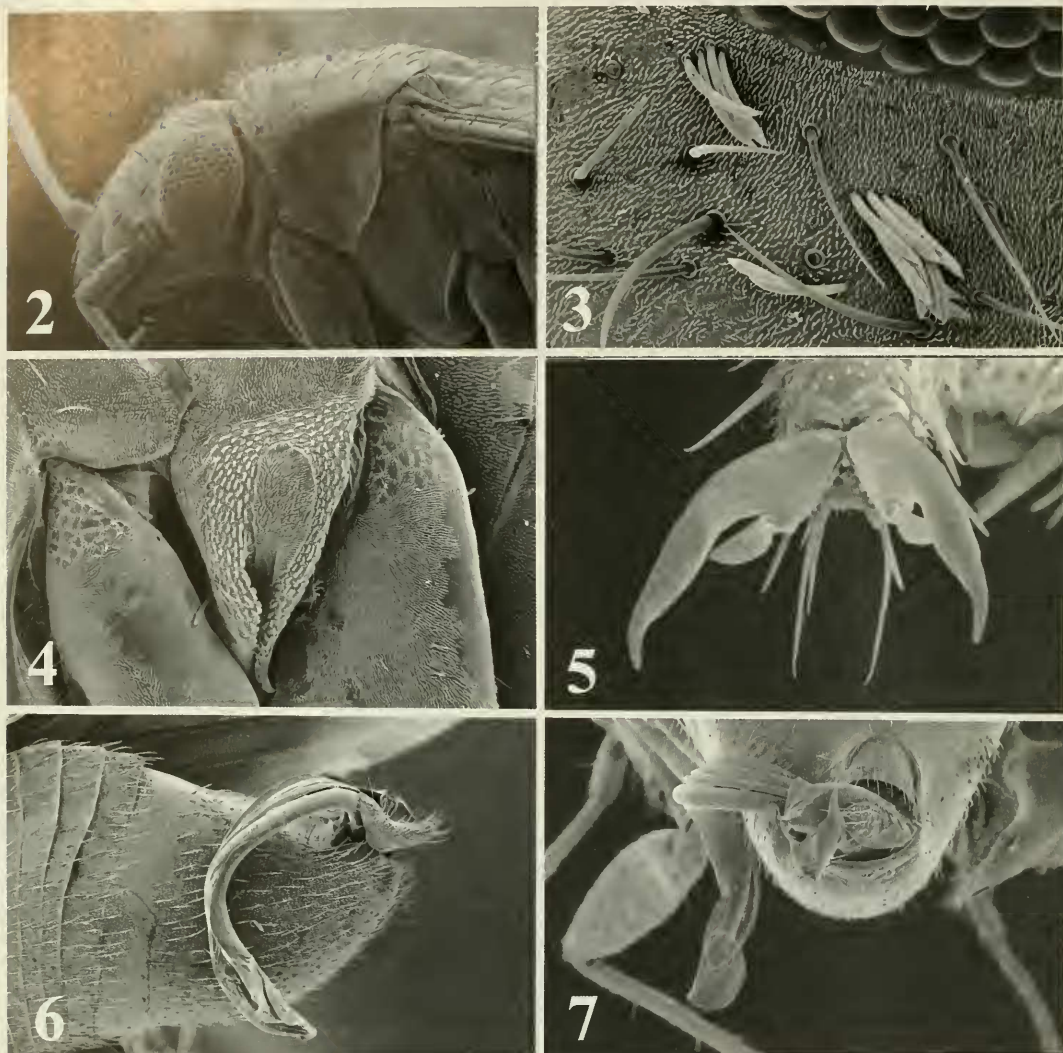


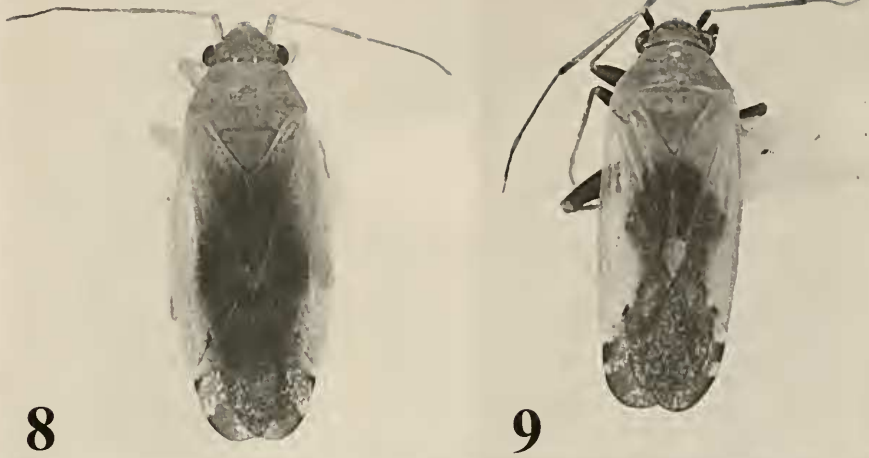
Fig. 1. Dorsal habitus illustration of *Keltonia wheeleri* ♀.



Figs. 2-7. Scanning electron micrographs of *Keltonia wheeleri*, ♂. 2, Head and pronotum, lateral aspect (122×). 3, Clusters of scalelike setae bordering compound eye (805×). 4, Metathoracic scent gland auricle and evaporatory area (326×). 5, Claw (1,170×). 6, Lateral aspect of genital capsule, with vesica extended (114×). 7, Caudal aspect of genital capsule, with vesica extended (118×).

(USNM); 5 ♂, 3 ♀, Jefferson Co., Rt. 1, 3.5 mi NE of Wrens, 1 July 1998, AGW, on *P. americana* (USNM); 13 ♂, 17 ♀, McDuffie Co., Rt. 221, 5 mi. S of Harlem, 11 Oct. 1998, AGW, on *P. americana* (AMNH, CNC, USNM, and TAMU); 2 ♂, 5 ♀, McDuffie Co., CR [county road]-86, nr jct rts 78 & 278, W of Dearing, 5 July 1998, AGW, on *P. americana* (USNM); 5 ♂, 2 ♀, Richmond Co., Rt. 1, Blythe, 1 July 1998, A. G. Wheeler, Jr. [AGW], taken on

P. americana (USNM); 4 ♂, 6 ♀, Richmond Co., Wheeler Rd., Augusta, 1 July 1998, AGW, on *P. americana* (USNM); 4 ♂, 5 ♀, Richmond Co., Augusta, 18 Oct. 1998, AGW, on *P. americana* (USNM). SOUTH CAROLINA: 7 ♂, 32 ♀, same data as for holotype (AMNH, CNC, USNM); 1 ♂, 6 ♀, same data as for holotype, except taken on 5 June 1998 (USNM); 3 ♀, Aiken Co., Rt. 1 and CR-151, W. of Monetta, 28 June 1998, A. G. Wheeler, Jr.

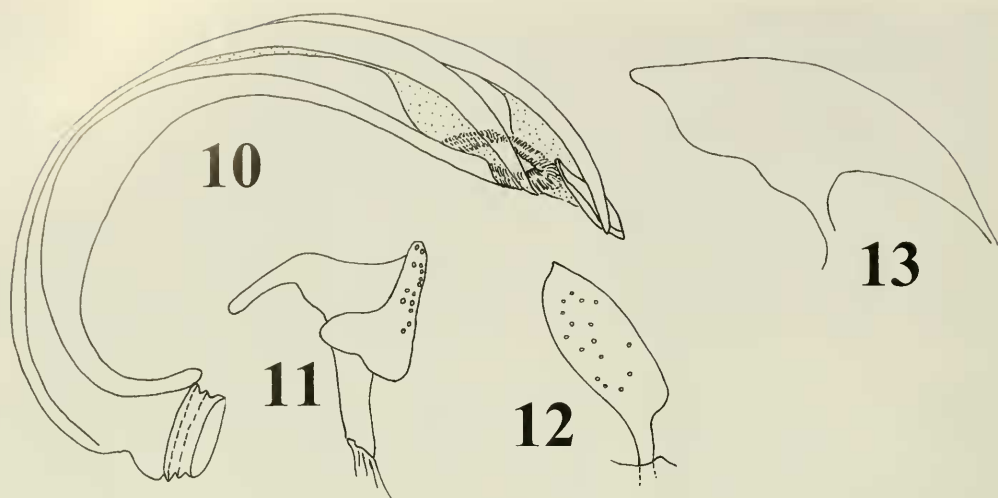


Figs. 8, 9. Dorsal photographs of *Keltonia* spp. 8, *K. wheeleri*, ♂. 9, *K. rubrofemorata*, ♂.

coll., on *P. americana* (USNM); 1 ♂, 7 ♀, Aiken Co., Rt. 125, 1.7 mi. SE of Beech Island, 5 July 1998, AGW, on *P. americana* (USNM); 4 ♂, Aiken Co., Rt. 20w, exit 33, NW of New Holland, 28 June 1998, AGW, on *P. americana* (USNM); 2 ♀, Aiken Co., CR-1121, nr. Rt. 39, 4 mi. W of Wagener, 28 June 1998, AGW, on *P. americana* (USNM); 2 ♂, 5 ♀, Aiken Co., Rt. 19, 1 mi. S of Eureka, 18 Oct. 1998, AGW, on *P. americana* (USNM); 2 ♂, 5 ♀, Barnwell Co., Rt. 39, 0.2 mi. N of Rt. 278, SW of Williston, 18 Oct. 1998, AGW, on *P. americana* (USNM); 1 ♂, 2 ♀, Edgefield Co., Bettis Acad. Rd., 4.5 mi. SSW of Trenton, 5 June 1998, AGW, on *P. americana* (USNM); 1 ♂, 1 ♀, Edgefield Co., S-429 at junc Rt 25, 5.5 mi. N. of Augusta, 5 July 1998, AGW, on *P. americana* (USNM); 1 ♀, Edgefield Co., Rt. 25, 6.5 mi. N of Aiken Co. line, S of Trenton, 28 Nov. 1998, AGW, on *P. americana* (USNM); 4 ♂, 8 ♀, Edgefield Co., Mt. Zion Rd., NE of North Augusta, 5 June 1998, AGW, on *P. americana* (USNM); 5 ♂, 6 ♀, Lexington Co., CR-445, E of Rt. 178, SE of Batesburg, 28 June 1998, AGW, on *P. americana* (USNM); 2 ♀, Lexington Co., Rt. 178, 0.3 mi E of Rt. 20, N of Steedman, 28 June

1998, AGW, on *P. americana* (USNM); 8 ♂, 7 ♀, Orange Co., CR-1609, E of Rt. 39, 2 mi. SE of Salley, 28 June 1998, AGW, on *P. americana* (USNM, TAMU).

Discussion.—*Keltonia wheeleri* (Figs. 1, 8) is one of the more distinct species of the genus in having a bright, shiny yellow, dorsal coloration, with a large, dark, centrally located mark through the middle of the corium and across the apex of the clavus. It is most closely related to *K. rubrofemorata* (Fig. 9), the type of the genus, based on the overall coloration, male genital structures, and the unusual shared host genus (*Polygonella* Michx. [Polygonaceae]). *Keltonia wheeleri* has the head, all antennal segments, and the pro- and mesofemora yellowish, with only the apex of the metafemur tinged with pale red or orange, has a shorter antennal segment II (0.58–0.66 mm in ♂; 0.64–0.67 mm in ♀), has a larger hemelytral spot (Figs. 1, 8), and is found only on *Polygonella americana*, whereas *K. rubrofemorata* has the head, first antennal segment (and often segments II–IV), and all femora dark red, has a proportionately longer antennal segment II (0.68–0.70 mm in ♂, 0.68–0.76 mm in ♀), has a smaller he-



Figs. 10-13. Male genitalia of *Keltonia wheeleri*. 10, Vesica. 11, Left paramere. 12, Right paramere. 13, Phallosome.

melytral spot (Fig. 9), and is found only on *P. myriophylla* (Small) Horton.

Couplet 2 of my key to the species of the genus (Henry 1991) may be modified as follows to accommodate *K. wheeleri*:

- 2a. Dorsum bright, shiny yellow; hemelytra lacking small brown spots or speckles surrounding brown cloud or solid dark area at middle; metafemur dark red or tinged with orange or red apically 2b
- Dorsum dull, sometimes phosphorescent yellow; hemelytra with numerous small spots or speckles surrounding brown cloud or dark area at middle; femora pale yellow to greenish yellow, never tinged with orange or red 3
- 2b. Head, antennal segment I, and all femora dark red (Fig. 9) *K. rubrofemorata* Knight
- Head, antennal segment I, and pro- and mesofemora pale yellow (Figs. 1, 8); metafemur tinged with orange or red only on apical 1/3 *K. wheeleri*, n. sp.

***Pseudatomoscelis nubila* Henry,**
new species
 (Figs. 16, 18-21)

Diagnosis.—*Pseudatomoscelis nubila* (Fig. 16) is distinguished from all other species of the genus by the uniformly brown-spotted, yellow to greenish-yellow dorsum, with an irregular, transverse, brown band

across the middle of the corium, and the mostly fuscous to black hemelytral membrane, having a pale or white spot near the apex of the cuneus and a narrower spot just beyond first spot.

Description.—*Male* (n = 10): Length 2.48-2.72 mm, width 1.13-1.16 mm. *Head*: Width 0.64-0.66 mm, vertex 0.29-0.30 mm. *Rostrum*: Length 1.06-1.12 mm, extending to middle of abdomen. *Antenna*: Segment I, length 0.18-0.20 mm; II, 0.67-0.77 mm; III, 0.40-0.43 mm; IV, 0.33-0.35 mm. *Pronotum*: Length 0.50-0.53 mm, basal width 0.96-1.16 mm.

Female (n = 10): Length 2.56-2.80 mm, width 1.20-1.24 mm. *Head*: Width 0.60-0.62 mm, vertex 0.32-0.34 mm. *Rostrum*: Length 1.02-1.14 mm, extending to base of ovipositor. *Antenna*: Segment I, length 0.20-0.21 mm; II, 0.65-0.77 mm; III, 0.36-0.38 mm; IV, 0.29-0.30 mm. *Pronotum*: Length 0.48-0.49 mm, basal width 0.98-1.02 mm.

Overall coloration golden yellow, evenly brown spotted on pronotum and hemelytra. Head golden yellow, paler along median line, with scattered brown or fuscous spots, mostly along inner margins of eyes and across base of vertex. Antenna yellow; seg-

14



15



16



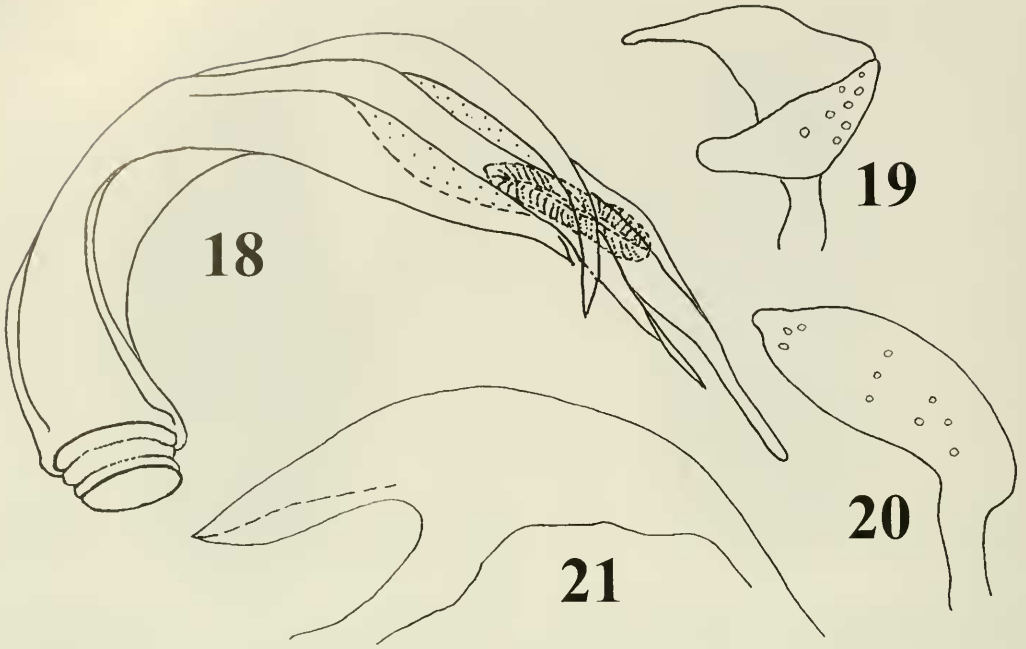
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Figs. 14–17. Dorsal photographs of *Pseudatomoscelis* spp. 14, *P. flora*, ♀. 15, *P. insularis*, ♂. 16, *P. tubila*, ♀. 17, *P. seriata*, ♂.

ment I with a partial to complete subapical and subbasal black band; segment II yellow, with four or five distinct black spots; segment III yellow to yellowish brown, narrowly fuscous at base; segment IV brown,

narrowly black at base. Pronotum evenly brown spotted, less so on anterior $\frac{1}{3}$ across calli; mesoscutum and scutellum evenly brown spotted. Hemelytron evenly brown spotted, with spots coalescing to form an



Figs. 18–21. Male genitalia of *Pseudatomoscelis nubila*. 18, Vesica. 19, Left paramere. 20, Right paramere. 21, Phallosome.

irregular band across middle of corium; membrane fuscous or black, with two pale spots, one near apex of cuneus and a second narrower one just beyond first spot, sometimes slightly paler between areoles; veins yellowish, becoming fuscous on basal half or more of large areole. Ventral surface pale yellow, with a few scattered spots on abdomen; pleural area of pronotum often with an orange tinge or dash just above proacetabula. Legs yellow; coxae with a few scattered brown spots; femora evenly brown spotted; tibiae with large fuscous spots at bases of black spines; tarsi yellow; claws brown. Vestiture of two types: simple, erect, black setae arising from dorsal spots, black setae on head considerably longer than those on pronotum and hemelytra; and scattered clusters containing three to nine silvery, sericeous or scalelike setae on pronotum, scutellum, hemelytra, and along inner margin of eyes and across vertex of head.

Male genitalia: Vesica (Fig. 18); left paramere (Fig. 19); right paramere (Fig. 20); phallosome (Fig. 21).

Etymology.—The specific name is from the Latin “nubila,” meaning cloud, to draw attention to the mottled brownish band or cloud across the middle of the corium.

Host.—This species was collected on a shrublike species of *Croton* (Euphorbiaceae) growing in an arid habitat, containing native cacti, along the coast near Cabo Rojo, Dominican Republic.

Distribution.—Known only from southwestern Dominican Republic (Pedernales).

Type material.—Holotype ♂, Dominican Republic, Prov. Pedernales, 5 km N Cabo Rojo, nr sea level, 17°57'59"N 17°39'02"W, 12 April 2000, T. J. Henry & R. E. Woodruff, taken on *Croton* sp. (USNM). Paratypes: 17 ♂, 11 ♀, same data as for holotype (1 ♂, 1 ♀, AMNH; 1 ♂, 1 ♀ CNC; 15 ♂, 9 ♀ USNM).

Discussion.—This new species is most similar to *P. insularis* Henry (Fig. 15) and *P. seriata* (Reuter) (Fig. 17) in the overall brown-spotted dorsum. From *P. seriata*, it can be distinguished by the transverse brown band on the corium and the fuscous

membrane and the stouter, more curved vesica (Fig. 18), having more pronounced spiculi. From *P. insularis*, it can be separated by the larger size, transverse corial band, and shape of the vesica. All of the above brown-spotted species are distinct from the uniformly yellowish-orange *P. flora* (Van Duzee) (Fig. 14), which lacks dorsal spots.

KEY TO SPECIES OF *PSEUDATOMOSCELIS*

- 1. Dorsum immaculate, without spots (Fig. 14); body yellow to yellowish orange; Arizona and Mexico *flora* (Van Duzee)
- Dorsum always with dark spots; body pale yellow to dark green, sometimes tinged with yellowish orange 2
- 2. Inner margin of cuneus without or with only vague spots bearing 2 or 3 bristlelike setae (Fig. 15); vesica of male short and stout; Puerto Rico and St. Thomas, West Indies *insularis* Henry
- Inner margin of cuneus with 1 or 2 distinct dark spots bearing numerous dark bristlelike setae; vesica of male more slender 3
- 3. Dorsum uniformly brown spotted (Fig. 17); hemelytral membrane mostly hyaline, often tinged with brown basally and with only a black dash just beyond apex of cuneus; widespread from Saskatchewan, Canada, to Venezuela, and the West Indies *seriata* (Reuter)
- Dorsum uniformly brown spotted, but also usually with an irregular brown band across middle of corium (Fig. 16); hemelytral membrane mostly fuscous or black, with two pale areas, one just beyond apex of cuneus and a second

more narrow one slightly beyond the first; Dominican Republic *nubila*, n. sp.

ACKNOWLEDGMENTS

I am grateful to A. G. Wheeler, Jr. (Department of Entomology, Clemson University, Clemson, SC) for providing me with the specimens of the interesting new species of *Keltonia* and R. E. Woodruff (Gainesville, Florida) for inviting me to join him on a productive, month-long collecting expedition to the Dominican Republic that yielded numerous interesting and several new species of Heteroptera, including *Pseudatomoscelis nubila*. I also thank Kathleen Schmidt (Hillsdale, New York) for the adult habitus illustration of *K. wheeleri* and Michele Touchet (Systematic Entomology Laboratory [SEL], ARS, USDA, % USNM) for the dorsal photographs used in this paper. M. G. Pogue (SEL), D. R. Smith (SEL), and A. G. Wheeler, Jr. kindly reviewed the manuscript and offered useful comments.

LITERATURE CITED

Henry, T. J. 1991. Revision of *Keltonia* and the cotton fleahopper genus *Pseudatomoscelis*, with the description of a new genus and an analysis of their relationships (Heteroptera: Miridae: Phyllinae). *Journal of the New York Entomological Society* 99: 351–404.